

Nervous System

RELATED CHAPTERS IN PART 5

- Chamomile
- Evening Primrose
- Feverfew
- *Ginkgo biloba*
- Asian Ginseng
- Kava-Kava
- St. John's Wort
- Valerian

AGE-RELATED COGNITIVE DECLINE AND EARLY-STAGE ALZHEIMER'S DISEASE

Although age-related cognitive decline (also known as *mild cognitive impairment* or *age-associated memory impairment*) and Alzheimer's disease are not necessarily linked, they represent two of the major concerns facing older adults. While this introduction spends more time focusing on Alzheimer's disease, keep in mind that the herbal and nutritional recommendations are possibly best suited for persons with age-related cognitive decline; in other words, these supplements may work better before a person actually gets to full-blown Alzheimer's disease.

Age-related changes in memory have been widely studied. Long-term memory seems to be more adversely affected as we age when compared to short-term memory. Memory tasks that require deliberate recall of information and recognition for verbal visual information often become more difficult. While no one knows for sure why these changes occur, some focus has been placed on physiological processes in the body including blood flow to the brain, changes in normal neurotransmitter levels, and even loss of nerve cells in certain parts of the brain.

Except for cardiovascular disease and cancer, the major health care concern among elderly people in U.S. society is dementia. *Dementia* refers to mental deterioration. The most common form of dementia is Alzheimer's disease. Close to 2 million Americans have Alzheimer's, and the incidence is on the rise.

Alzheimer's disease that starts before age 65 is referred to as "pre-senile" dementia. After 65, you've got "senile" dementia (I believe people over 65 ought to resist the label "senile"). The condition starts with memory loss and signs of depression, including apathy and social withdrawal. As the brain degenerates, these symptoms progress to problems with speaking, impaired ability to make proper judgments, and personality changes including paranoid thoughts. In the advanced stages of the illness, people usually require full-time supervision to counter confusion and aggressive behavior.

Although medicine really knows very little about the condition and how to prevent or treat it, there are a few findings of interest. Medical research has looked at the brains of people with Alzheimer's after they've died and found key areas destroyed and infiltrated with abnormal protein. Also, the neurotransmitters serotonin and acetylcholine—chemical substances that carry messages in the brain—are either low or don't have proper binding sites in Alzheimer's patients. Lastly, Alzheimer's patients show a 30 percent reduction in normal blood flow to the brain.

All of this makes for wonderful discussion among doctors. What *you* really want to know is how to prevent the condition. Although we're a long way from a clear answer, new information is emerging that indicates prevention may involve reducing free radicals in the brain through the use of antioxidant herbs and nutrients.

Note: The recommendations here should be thought of as options for age-related memory loss. As far as Alzheimer's disease, the recommendations made here address early-stage treatment and possibly prevention. Although I'm not opposed to using these recommendations for patients with moderate to advanced Alzheimer's, it is unrealistic to expect very significant results.

HERBAL PRESCRIPTION

- *Ginkgo biloba* extract—120 to 240 milligrams daily in two to three divided doses

Actions: Improves blood flow to the brain. Protects the cells of the brain from free radical damage. May increase the number of and normalize serotonin receptors in the brain. Ginkgo is effective for treating age-related memory loss and mild cognitive impairment. Research indicates it should be reserved for mild to moderate cases of Alzheimer's disease.

Note: In 1999, the National Institutes of Health (NIH) Center for Complementary Medicine announced funding for a 5-year study to assess whether ginkgo prevents the occurrence of dementia and/or cognitive decline in older persons. One of the announced sites for the study is the Alzheimer's Disease Research Center at the University of Pittsburgh. The study is planned to begin in 2000 and will use 240 milligrams of ginkgo extract daily.

OTHER HERBAL CONSIDERATIONS

- Asian ginseng—100 milligrams twice daily of an extract standardized to contain 5 to 7 percent ginsenosides¹

Actions: Protects cells of the brain and increases serotonin activity; increases mental alertness.

- Huperizine A—200 to 400 micrograms twice daily²

Action: Huperizine A is an alkaloid from a species of Chinese club moss known as *Huperiza serrata*. According to animal studies, it has very specific acetylcholinesterase-inhibiting properties. While it appears somewhat safer than drugs with similar actions (e.g., Cognex®, Aricept®), long-term safety studies are lacking. I don't agree with this being sold as an over-the-counter dietary supplement and would encourage use only under the supervision of a trained health care professional.

NUTRITIONAL SUPPLEMENT CONSIDERATIONS

- Acetyl-L-carnitine— 2 to 3 grams daily^{3,4}
- Phosphatidylserine—100 milligrams three times daily⁵

Note: The research on acetyl-L-carnitine (ALC) and phosphatidylserine (PS) suggests that these substances work better in cases of mild cognitive impairment as opposed to Alzheimer's disease. Because they are extremely expensive supplements, it's better to choose one or the other. While my bias is with ginkgo as the primary focus of any program for mild cognitive impairment, I would probably place ALC second on my priority list ahead of PS. The type of PS used in the majority of clinical studies came from cow brains! This quickly lost popularity with the outbreak of mad-cow disease in England (also known as "Mad Cows and Englishmen"). The effectiveness of the soy-derived source of PS being currently sold in the United States remains to be proven.

- Thiamine (vitamin B₁)—10 to 50 milligrams daily⁶
- Folic acid—400 micrograms daily⁷
- Vitamin B₁₂—Intramuscular injection of 1,000 micrograms once monthly

Note: This treatment should be performed only by a skilled health care practitioner.^{8,9}

- Vitamin E—800 to 2000 international units (IU) daily^{10,11}

Note: These are very high doses of vitamin E, particularly if you are taking anticoagulant medication. The higher end of this dosage range (2,000 IU/day) has only been studied with Alzheimer's disease patients. Lower doses should be considered for age-related memory loss. Please check with your doctor before taking such large doses of vitamin E.

ANXIETY

Anxiety is the most common psychiatric diagnosis in U.S. society today. Five percent of the population is diagnosed with anxiety. It commonly afflicts younger adults.

Stress, feelings of isolation, and internal conflicts can all contribute to anxiety. The most obvious trigger is stress. People push themselves daily, forgetting their body's need to relax and recover. Anxiety is often a sign that body reserves (i.e., adrenal glands) have been exhausted.

Less obvious triggers can also lead to the same point. Repressed internal feelings are another source of anxiety. Modern society has also isolated many people, with the resulting feelings of detachment both physically and emotionally producing anxiety.

Acute anxiety attacks are known as panic attacks. Usually lasting a few minutes to 1 or 2 hours, these attacks can be frightening. Shortness of breath, rapid heart beat, and chest pain sometimes accompany these attacks. Although rarely a medical emergency, acute panic attacks can cause hyperventilation. This condition is dangerous and needs to be monitored by a medical professional.

Persons with chronic anxiety may go unnoticed. If they experience attacks of anxiety, they are usually less severe and last longer. These individuals are often uneasy in public and have uncertainty about the future. They commonly complain about chronic fatigue, insomnia, and a variety of physical problems.

As noted in the chapters on kava and valerian in Part 5, antianxiety drugs are among the most common prescriptions in the United States today. The herbal recommendations made here are alternatives for the treatment of mild to moderate anxiety. I also recommend reviewing the discussion on stress and fatigue in the chapter “Endocrine System.” A complete program for treating anxiety should include combating adrenal exhaustion.

HERBAL PRESCRIPTION

- Kava-kava extract (30 to 70 percent kava lactones)—The daily dose should deliver 140 to 240 milligrams of kava lactones in two or three divided doses.

Action: Relaxing effect on the body without a narcotic-like effect on the mind

OTHER HERBAL CONSIDERATIONS

- Valerian root (concentrated root extract—5:1—containing no less than 0.5 percent volatile oils)—300 to 500 milligrams $\frac{1}{2}$ to 1 hour before bedtime. In the morning, take 300 milligrams.

Note: Valerian is sometimes combined with passion flower or St. John's wort in European herbal products used to treat anxiety. I do not recommend using valerian with kava.

For other herbal, nutritional, and lifestyle recommendations, please see the section on stress and fatigue in the chapter "Endocrine System."

ATTENTION DEFICIT–HYPERACTIVITY DISORDER

One need venture no further than the last few volumes of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* to realize the uncertainty surrounding the diagnosis of attention deficit–hyperactivity disorder (ADHD). The last three or four decades have seen this condition labeled minimal brain damage, minimal brain dysfunction, behavior and learning disorder, hyperkinetic-impulsive disorder, hyperkinetic syndrome, developmental hyperactivity, and, finally, attention deficit–hyperactivity disorder. What is apparent is that ADHD is a collection of symptoms or criteria. The decision to label a child with the diagnosis of ADHD is fraught with the potential for error.

Nowhere is this more evident than in attempts to estimate the number of children with ADHD. Recent estimates place the numbers at 10 percent of boys and 3 percent of girls ranging in age from 4 to 11 years old. The central feature of ADHD is difficulty getting things done, both at home and at school, and trouble getting along with adults and other children. The increased activity and short attention span of the child with ADHD have led to the use of stimulant drugs such as Ritalin to control behavior. Paradoxically, these medications work to "slow down" the ADHD child. While sometimes effective in very serious cases, these medications are potentially harmful and may mask symptoms without getting to the core of the problem.

Early intervention and successful treatment of ADHD have become even more important in light of studies predicting that these children face greater problems as adults. Evidence is mounting that children with ADHD are at higher risk for depression, restlessness, alcoholism, and antisocial behavior as adults.¹

Note: The recommendations here are based more on my clinical experience than published studies. There's a lot of interest currently on the potential benefits of ginkgo and essential fatty acids for children with ADHD. No data to date, but keep these on the radar screen. Work closely with a health care professional well trained in nutrition and herbal medicine when making treatment choices for your child with ADHD.

NUTRITIONAL SUPPLEMENT CONSIDERATIONS

- Vitamin B₆—50 to 100 milligrams daily²
- Magnesium—200 milligrams daily³

Note: Be aware of the potential for diarrhea at this dose of magnesium.

- Chromium—100 to 200 micrograms daily⁴
- Docosahexanoic acid (DHA)—200 milligrams daily

Note: Based on some pilot work in Great Britain with evening primrose oil,⁵ there's been a lot of interest in the role that essential fatty acids (EFAs) may play in the management of ADHD. Interest in the past few years has begun to shift from EPO to DHA, an EFA that is found in high concentrations in the brain and critical for neurological development in infants. Researchers have speculated that children with ADHD may be deficient in this EFA. Studies looking at 200 milligrams of DHA daily in children with ADHD are currently under way.

DIETARY RECOMMENDATIONS

Encourage a whole-foods diet, high in protein and complex carbohydrates. Cut down on sugar and other simple carbohydrates.⁶ Cut back on processed junk foods high in additives and food colorings. The Hyperactive Children's Support Group of Great Britain recommends that the following food additives be avoided:

Tartrazine	Quinoline Yellow	Caramel
Sunset Yellow	FCF	Cochineal
Benzoic acid	Carmoiic acid	Sodium benzoate
Amaranth	Sulfur dioxide	Sodium nitrate

Red 2G	Potassium nitrate	BHA
Brilliant Blue FCF	BHT	Indigo
Carmine		

Try to avoid foods, such as the following, with high salicylate content:⁷

Plums (canned)	Prunes (canned)
Raspberries (fresh)	Strawberries (fresh)
Peppers	Tomatoes
Almonds	Peanuts
Peppermint tea	Honey

Many spices should be avoided, too: cardamom, cinnamon, cloves, curry, oregano, paprika, pepper, rosemary, sage, turmeric. Lowering the intake of cow's milk, soy, eggs, wheat, citrus, and other potential allergenic foods may be helpful until your child's behavior improves.⁸ Identification and elimination of food allergens should be done under the supervision of a trained health care practitioner.

LIFESTYLE CONSIDERATIONS

- Limit TV watching and video games.
- Work with a counselor to discover whether any family relationship problems may be triggering ADHD behaviors.
- Children with ADHD living in urban areas should be tested for possible lead poisoning.

DEPRESSION

The diagnosis of depression includes the presence, for at least 2 weeks, of at least four of the following signs and symptoms:

Poor appetite or significant weight loss
 Either lack of sleep or abnormally long periods of sleep
 Mental agitation or slowing of mental functioning
 Loss of interest in usual activities, including decreased sex drive
 Loss of energy and fatigue

Low self-esteem and feelings of worthlessness or self-reproach
Complaints or evidence of decreased ability to concentrate or think clearly
Recurrent thoughts of death or talk of suicide or actual suicide attempts

Depression is a broad definition and can range from mild, situational depression to more serious states requiring medication and possible hospitalization. The depressed individual should be under the supervision of a health care professional. Treatment of depression is usually complicated and requires the input of many different medical specialties.

Older people with mild cognitive decline are susceptible to depression. Depression often occurs with memory loss and, sometimes, irritability. It's ironic that this form of depression is often described as "resistant" because it does not respond well to many prescription antidepressants. As noted in the chapter on ginkgo in Part 5, older people who don't respond to prescription antidepressants may be candidates for ginkgo.

HERBAL PRESCRIPTIONS

Mild to Moderate Depression

- St. John's wort extract—300 to 350 milligrams of a standardized extract three times per day. Higher doses may work for more severe depression, but this treatment should only be attempted after consultation with your doctor. Expect results within 2 to 4 weeks.
Action: Although shown only in test tube studies to date, St. John's wort may inhibit the reuptake of the neurotransmitters serotonin, norepinephrine, and dopamine.

Note: Recent studies indicate that St. John's wort may be effective for seasonal affective disorder, a type of depression that hits people during the winter months.¹ The dosage used in the studies is the same as listed above for mild to moderate depression.

Older Individuals with "Resistant" Depression

- *Ginkgo biloba* extract—120 to 240 milligrams daily in two to three divided doses

NUTRITIONAL SUPPLEMENT RECOMMENDATIONS

- Vitamin B complex—50 milligrams once to twice daily²
- Folic acid—400 micrograms daily³
- Vitamin B₁₂—Intramuscular injection of 1,000 micrograms (1 milliliter) once monthly^{4,5}

Note: The vitamin B₁₂ treatment should be performed only by a skilled health care practitioner.

- Vitamin B₆—100 milligrams daily

Note: Women who have used oral birth control pills and have depression should consider a trial of vitamin B₆. Birth control pills can deplete vitamin B₆.⁶ Also, a combination of vitamin B₆, B₁₂, and folic acid helps counter the formation of homocysteine. This substance has been linked to atherosclerosis, as well as depression and dementia, in the elderly.⁷ These three nutrients should be paired with ginkgo in elderly depressed individuals.

DIETARY RECOMMENDATIONS

Identify and eliminate food allergens under the supervision of a trained health care practitioner. A trial elimination of wheat and cow's milk may prove beneficial. Small, frequent meals high in protein and complex carbohydrates help regulate blood sugar. Avoid excessive consumption of sugar and other simple carbohydrates.

OTHER CONSIDERATIONS

- Dehydroepiandrosterone (DHEA)—50 to 90 milligrams daily or as directed by your doctor⁸

Note: Research has suggested that some people with depression may be deficient in DHEA, particularly elderly persons. Use of this hormone should only be done under the supervision of a trained health care professional and continue only as long as your blood tests indicate that DHEA is low.

- Also, be sure your doctor checks for anemia and low thyroid function.

INSOMNIA

More than one-third of the adult population has trouble sleeping. Stress is a major culprit. However, if stress is affecting your sleep and loss of sleep is making you a wreck the next day, the last thing you want to hear is a lecture on stress reduction. So, let's look at some approaches to help you sleep, and when you're rested, you can read the section on fatigue and stress in the chapter "Endocrine System."

HERBAL PRESCRIPTION

- Valerian root extract—Concentrated root extract (5:1) containing no less than 0.5 percent volatile oils—300 to 500 milligrams ½ to 1 hour before bedtime. Children 6 to 12 years old may respond to half the adult dose.

Action: Mild central nervous system sedative. Helps you get to sleep quicker and enjoy a deeper sleep. Valerian is not addictive and doesn't cause the "morning hangover" common to many sleep aids.

OTHER HERBAL CONSIDERATIONS

- Chamomile—2 to 3 milliliters of a liquid extract in warm water before bed. Chamomile is a mild sedative and best reserved for infants or young children with restlessness caused by colic or teething.
- Passion flower (concentrated extract)—200 to 300 milligrams 1 hour before bedtime. Liquid preparations should be taken at a dose of 4 to 6 milliliters.¹

Action: Mild central nervous system sedative

- Other mild herbal sedatives include scullcap (that's an herb, not a yarmulke!), hops, and corydalis.

OTHER CONSIDERATIONS

- Melatonin—0.5 to 3 milligrams 1½ to 2 hours before bedtime²

Note: I prefer starting with valerian for insomnia. More is known about its effects when used on a regular basis. Melatonin may be more effective for older individuals with insomnia. Personally, I'm

a huge fan of using 1 to 2 milligrams to counter jet lag on trips to Europe.

- Acupuncture—Some clinical studies indicate that acupuncture may be of benefit for people with insomnia.³

MIGRAINE HEADACHE

Migraine headaches are characterized by throbbing pain on one or both sides of the head, occasionally accompanied by nausea, vomiting, and sensitivity to light. Approximately 80 percent of migraine headaches are classified as “common” migraines. These migraines last from 1 to 3 days and seldom have any warning signals beforehand.

Other migraine sufferers report symptoms that precede their headaches, including “auras”—blurring or bright spots around certain objects. This may be accompanied by disturbed thinking, anxiety, fatigue, and numbness or tingling on one side of the body. These are referred to as “classic” migraines and may last from 2 to 6 hours. This type of migraine is usually localized to one side of the head and accounts for approximately 10 percent of migraines. The remaining 10 percent come from migraine-like headaches known as *cluster headaches*.

HERBAL PRESCRIPTION

- Feverfew—Dried leaf extract with a standardized parthenolide content of at least 250 micrograms per daily dose; continuous use is recommended for the treatment and prevention of migraine headaches.

Actions: May inhibit serotonin and inflammatory mediator release from platelets. Improves blood vessel tone in affected area.

OTHER HERBAL CONSIDERATIONS

- Ginger rhizome powder—1 to 2 grams daily
- *Ginkgo biloba* extract—120 to 240 milligrams daily in two to three divided doses¹

NUTRITIONAL SUPPLEMENT CONSIDERATIONS

- Magnesium—200 to 300 milligrams twice daily^{2,3}

Note: Be aware of the potential for diarrhea at this dose of magnesium.

- Riboflavin (vitamin B₂)—400 milligrams daily⁴

Note: For the past few years, I've been recommending that persons with migraines consider taking a combination of feverfew, magnesium, and riboflavin. The results have been fabulous!

- MaxEPA (fish oil)—3 to 4 grams daily with meals⁵

- 5-hydroxytryptophan (5-HTP)—200 to 600 milligrams daily⁶

Note: Although this tryptophan-precursor snuck on the market in the last few years and avoided the current ban on over-the-counter tryptophan, I'm nervous about its potential to cause eosinophilia-myalgia syndrome—the dangerous condition attributed to tryptophan before it was banned. So, if you choose to use it, inform your doctor of that choice.

DIETARY RECOMMENDATIONS

Ban foods high in vasoactive amines from your diet. Key among these are aged cheeses, red wine, chocolate, and pickled herring (my wife would divorce me if I banned these!). Identify and eliminate food allergens under the supervision of a health care practitioner.⁷ Drop aspartame-containing beverages and foods from your diet.

MISCELLANEOUS CONSIDERATIONS

Relaxation and stress reduction are critical to the long-term success of any program for migraines. Biofeedback, massage, and meditation are methods you can use to reduce stress. Acupuncture has been shown to be a good long-term consideration for treatment of migraines.⁸

NEUROPATHY (DIABETIC)

Diabetic neuropathy is a common complication of diabetes. Affecting approximately 28.5 percent of all diabetics, it's a progressive disorder of the

nerves that leads to an initial sensation of “pins and needles” in the soles of the feet and palms of the hands.

Neuropathy can advance to a point at which sufferers have difficulty differentiating temperature and pressure changes in their extremities. This condition can lead to an inability to know when a burn or cut on the foot, for example, has occurred.

HERBAL PRESCRIPTIONS

- Evening primrose oil—4 to 6 grams daily with meals
Action: Supplies essential fatty acids, such as gamma-linolenic acid (GLA), that are improperly metabolized by diabetics. GLA and other essential fatty acid metabolites increase the levels of protective hormone-like substances known as prostaglandins.
- Capsaicin ointment (0.075 percent concentration)—Apply topically to painful areas four times daily.¹
Note: Capsaicin is the pungent (hot) constituent in cayenne pepper. The ointment reduces pain associated with neuropathy. Use cautiously, and be sure not to get it in your eyes or mouth.

OTHER HERBAL CONSIDERATION

- *Ginkgo biloba* extract—120 to 240 milligrams daily in two to three divided doses

NUTRITIONAL SUPPLEMENT CONSIDERATIONS

- Alpha-lipoic acid—800 milligrams daily²
- Vitamin B₆—50 to 100 milligrams twice daily³
- Vitamin B₁₂—15 to 30 micrograms daily for 7 to 14 days and then one to two times weekly (best delivered by intramuscular injection by a trained health care professional)⁴

DIETARY RECOMMENDATIONS

Please see the recommendations listed for diabetes in the chapter “Endocrine System.”